

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently Amended) A method of treating a subterranean formation comprising:
providing a treatment fluid that comprises a surfactant-free emulsion, the surfactant-free emulsion comprising an oleaginous fluid, a fluid that is at least partially immiscible with the oleaginous fluid, and solid emulsion facilitating particles, wherein the emulsion facilitating particles have a fluid contact angle in the range from about 70° to about 140°; and
treating the subterranean formation.
2. (Original) The method of claim 1 wherein the emulsion facilitating particles interact with the oleaginous fluid and the fluid that is at least partially immiscible with the oleaginous fluid to at least partially stabilize the surfactant-free emulsion.
3. (Original) The method of claim 1 wherein the method of treating the subterranean formation comprises a stimulation operation.
4. (Original) The method of claim 3 wherein the stimulation operation comprises a fracturing operation.
5. (Original) The method of claim 3 wherein the stimulation operation comprises an acid stimulation treatment.
6. (Original) The method of claim 5 wherein the acid stimulation treatment comprises a matrix acidizing process or a fracture acidizing process.
7. (Original) The method of claim 1 wherein the method of treating a subterranean formation comprises completing a well.
8. (Original) The method of claim 1 wherein the method of treating a subterranean formation comprises drilling a well bore.
9. (Original) The method of claim 1 further comprising flowing back a portion of the treatment fluid from the subterranean formation.
10. (Original) The method of claim 9 wherein the treatment fluid further comprises a breaker.
11. (Original) The method of claim 1 wherein the surfactant-free emulsion comprises a continuous phase and a discontinuous phase.

12. (Original) The method of claim 11 wherein the continuous phase comprises the oleaginous fluid.

13. (Original) The method of claim 11 wherein the continuous phase comprises the fluid that is at least partially immiscible with the oleaginous fluid.

14. (Canceled)

15. (Original) The method of claim 1 wherein the emulsion facilitating particles have a first fluid contact angle for the continuous phase and a second fluid contact angle for the discontinuous phase.

16. (Original) The method of claim 15 wherein the first fluid contact angle for the continuous phase is about equal to the second fluid contact angle for the discontinuous phase.

17. (Original) The method of claim 15 wherein the first fluid contact angle for the continuous phase is greater than the second fluid contact angle for the discontinuous phase.

18. (Original) The method of claim 1 wherein at least a portion of the emulsion facilitating particles are smaller than about 75 microns.

19. (Original) The method of claim 1 wherein the emulsion facilitating particles comprise any organically modified material.

20. (Original) The method of claim 19 wherein the organically modified material comprises silicas, fumed silicas, aluminum, titanium, zirconium, or various clay types.

21. (Original) The method of claim 1 wherein the emulsion facilitating particles comprise a metal sulfate.

22. (Original) The method of claim 1 wherein the emulsion facilitating particles comprise a polymer or combination of polymers.

23. (Original) The method of claim 1 wherein the oleaginous fluid comprises diesel oil, crude oil, paraffin oil, an olefin, an ester, an amide, an amine, a synthetic oil, an ether, an acetal, a dialkyl carbonate, a hydrocarbon, or combinations thereof.

24. (Original) The method of claim 1 wherein the fluid that is at least partially immiscible with the oleaginous fluid comprises fresh water, sea water, salt water, or brine.

25. (Original) The method of claim 24 wherein the brine comprises a H₂O soluble salt.

26. (Original) The method of claim 1 wherein the fluid that is at least partially immiscible with the oleaginous fluid comprises a heavy brine.

27. (Original) The method of claim 1 wherein the fluid that is at least partially immiscible with the oleaginous fluid comprises glycerin, a polyglycol amine, a glycol, a polyol, a derivative thereof, or a combination thereof.

28. (Original) The method of claim 1 wherein the treatment fluid further comprises proppant particulates, gravel particulates, a viscosifier, a thinner, a lubricant, an anti-oxidant, a weighting agent, an H₂O soluble salt, a wetting agent, a fluid loss agent, a corrosion inhibitor, a surfactant, or a scale inhibitor.

29. (Currently Amended) A method comprising:
drilling a well bore in a subterranean formation using a surfactant-free emulsion drilling fluid that comprises:
an oleaginous fluid;
a fluid that is at least partially immiscible with the oleaginous fluid; and
solid emulsion facilitating particles, wherein the emulsion facilitating particles have a fluid contact angle in the range from about 70° to about 140°.

30. (Original) The method of claim 29 wherein the emulsion facilitating particles have a first fluid contact angle for the continuous phase and a second fluid contact angle for the discontinuous phase.

31. (Original) The method of claim 30 wherein the first fluid contact angle for the continuous phase is about equal to the second fluid contact angle for the discontinuous phase.

32. (Original) The method of claim 30 wherein the first fluid contact angle for the continuous phase is greater than the second fluid contact angle for the discontinuous phase.

33. (Original) The method of claim 29 wherein the emulsion facilitating particles comprise any organically modified material, a metal sulfate, a polymer or combination of polymers.

34. (Original) The method of claim 33 wherein the organically modified material comprises silicas, fumed silicas, aluminum, titanium, zirconium, or various clay types.

35. (Original) The method of claim 29 wherein at least a portion of the emulsion facilitating particles are smaller than about 75 microns.

36. (Original) The method of claim 29 wherein the oleaginous fluid comprises diesel oil, crude oil, paraffin oil, an olefin, an ester, an amide, an amine, a synthetic oil, an ether, an acetal, a dialkyl carbonate, a hydrocarbon, or combinations thereof.

37. (Original) The method of claim 29 wherein the fluid that is at least partially immiscible with the oleaginous fluid comprises fresh water, sea water, salt water, or brine.

38. (Original) The method of claim 37 wherein the brine comprises a H₂O soluble salt.

39. (Original) The method of claim 29 wherein the fluid that is at least partially immiscible with the oleaginous fluid comprises a heavy brine.

40. (Original) The method of claim 29 wherein the fluid that is at least partially immiscible with the oleaginous fluid comprises glycerin, a polyglycol amine, a glycol, a polyol, a derivative thereof, or a combination thereof.

41. (Original) The method of claim 29 wherein the treatment fluid further comprises a viscosifier, a thinner, a lubricant, an anti-oxidant, a weighting agent, an H₂O soluble salt, a wetting agent, a fluid loss agent, a corrosion inhibitor, a surfactant, or a scale inhibitor.

42-62. (Canceled)

63. (Currently Amended) A method of fracturing a subterranean formation comprising:

providing a surfactant-free emulsion composition comprising an oleaginous fluid, a fluid that is at least partially immiscible with the oleaginous fluid, solid emulsion facilitating particles, wherein the emulsion facilitating particles have a fluid contact angle in the range from about 70° to about 140°, and a portion of proppant particulates; and

placing the surfactant-free emulsion composition into the subterranean formation at a pressure sufficient to create or enhance at least one fracture therein.

64. (Original) The method of claim 63 wherein the surfactant-free emulsion composition further comprises a breaker.

65. (Original) The method of claim 63 further comprising removing the surfactant-free emulsion composition from the subterranean formation while leaving at least a portion of the proppant particulates in the fracture.

66. (Currently Amended) A method of installing a gravel pack comprising:

providing a gravel pack surfactant-free emulsion composition comprising an oleaginous fluid, a fluid that is at least partially immiscible with the oleaginous fluid, solid emulsion facilitating particles, wherein the emulsion facilitating particles have a fluid contact angle in the range from about 70° to about 140°, and a portion of gravel particulates; and

introducing the composition to a well bore penetrating a subterranean formation so that the gravel particulates form a gravel pack substantially adjacent to a desired location in the well bore.

67-88. (Canceled)